used forceps and I have used them more extensively than other men would use them. I am generally opposed to Cesarean section in infected cases. I have in a few instances attempted the classical operation and have had excellent results, but I do not consider that good practice. The cases which Dr. Spalding mentioned which he saw in some of the European clinics I do not regard as necessarily infected cases. So far as the importance of carefully estimating the size of the head, I am in full accord with Dr. Spalding, but my experience has not convinced me that one can estimate it with any great degree of accuracy.

Dr. H. J. Kreutzmann: I cannot remember that I have seen in my practice in San Francisco any case of funnel-shaped pelvis. I say we ought not to perform Cesarean section in cases of moderately contracted pelvis after certain hours have passed. My experience is that even when examined very little, where the labor has been protracted, that it is almost impossible to avoid the importation of staphylococci into the vagina. The great danger is that most women who have died from Cesarean section died from peritonitis. In my paper I did not go into the subject of pubiotomy or symphisiotomy; I will not do these operations because it is always likely that the patient will be injured from them and I am afraid that I might have a suit for damages brought against me. As far as the induction of premature labor is concerned, I have on a former occasion stepped into the arena for induction of premature labor and I continue to use this procedure in suitable cases.

OPERATIVE AND POST-OPERATIVE TONSILLAR HEMORRHAGE.*

By W. S. FRANKLIN, M. D., San Francisco.

The essayist in presenting this paper does not attempt a digest of the literature on the control of operative and post-operative tonsillar hemorrhage but wishes to give an account of his operative experience with the enucleation of the tonsil and the means found successful in controlling the bleeding.

For the past six years my work in tonsillar surgery has been what may be called radical inasmuch as the tonsillotome has been discarded as well as slitting the lacunae, cauterization, and the use of the punch. In all cases removal of the entire tonsillar mass, including the intact capsule, was attempted.

Hemorrhage is a variable term and the great diversity of opinion regarding its frequency can be traced to the temperamental differences existing among operators. One may call ordinary bleeding that follows the severance of arteries hemorrhage, while another limits the use of this term to an exsanguinated patient. Cases which resist pressure sponges after five minutes' application will be considered as hemorrhage. In private practice it is not feasible, as a routine procedure, to ascertain the blood-clotting index and guard against the occasional hemophilia.

The necessary questions and painstaking investigation will so alarm the average parent that many necessary cases will be denied this beneficial surgical procedure. Unless some such information is volunteered I proceed without fear of hemophilia.

In seventeen cases treated with calcium by the referring physician, as a preliminary to the operation, I noticed no change in the rapidity of clotting.

As bleeding may differ according to the technic of individual operators, I will explain the essentials of my method. An anesthetist trained in tonsillar work is essential and this point I must emphasize as, occasionally, I have been guilty of allowing a new interne or the family physician to administer the anesthetic and have invariably regretted it. The narcosis must be deep in throat surgery as the pharyngeal reflexes seem among the last to be abolished.

In the beginning of this work I operated eleven cases with local anesthesia in my office. Out of the eleven cases five had marked bleeding and it was necessary to remove two of them to a hospital and administer an anesthetic to control the hemorrhage. Since then I have discarded cocain and adrenalin anesthesia and firmly believe that its use for this operation in one's office is not to the best interests of either the patient or surgeon.

I have had no experience with nerve blocking, the injection of urea, hydrate or quinine sulphate. The same objections, possibly less the toxicity would hold, as for cocain. If local anesthesia is indicated the operation should be performed within the operating room of a hospital.

One of the patients, an army officer thirty years old, felt no pain and held his throat perfectly during the operation but after twenty minutes, in an endeavor to stop the hemorrhage, his pharynx became so irritable that I could no longer work properly. This, I consider the main objection to local anesthesia, i. e., the inability of the patient to allow the necessary methods for control of possible hemorrhage and his constant effort to clear his throat.

For the past number of years I have used the mouth-gag of Dr. Sewall of San Francisco and have found it admirable for all cases from infants to adults. Certain precautions must be exercised in its use. The tongue depressor must ride the base of the tongue, pulling it forward so that the operator can at all times see the entire epiglottis. The anterior end of the tongue or lips must not be caught against the lower teeth. The anesthetist should elevate the handle, thereby pulling the entire lower jaw forward. The one objection I have found in its use in over six hundred cases is the marked stretching of the anterior pillars, which at times makes them as thin as parchment. In five cases, I have perforated the pillars unintentionally and my efforts to suture the small holes made the first three worse, so the fourth and fifth were not interfered with and healed the best. Such a perforation, while technically not a good result, is not in any sense a discomfit to the patient.

I use the Klaar electric head-light and find it extremely satisfactory as it does not become hot and allows binocular vision without straining the neck. The pillars are separated with a quasi-sharp, small, rounded knife which pulls rather than cuts the mucous membrane. I prefer to do my own sponging as the operator can more quickly and

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effectively apply loose sponges with a long dressing forceps than an assistant and the trauma is less marked. The sponges are held in the lap. In this manner it is not necessary to remove the light from the patient's mouth.

The size of the wires used does not influence bleeding nor does the slowness or rapidity of severance alter it. The base of the tonsil is large and though the muscle is momentarily compressed, soon regains its shape through its own elasticity; hence the time consumed in detaching the mass is of no consequence. I use, preferably, a strong wire as it can more readily be pressed between the capsule without a tendency to cut into any rough depression.

After the removal of the tonsil a mounted sponge is pressed firmly into the cavity and held in place for two minutes by the watch. Upon its removal the parenchymatous oozing has ceased and if bleeding continues its source can readily be distinguished from one, two, or three points. Using a long, curved artery forceps, having its tips guarded with thin rubber tubing, the anterior pillar is clasped, pulled aside and held firmly by the nurse. This brings the entire operative field into view and is preferable to pillar retractors. The latter constantly slip owing to the mucous and blood present and the inability of the assistant seeing into the throat. The bleeding points are picked up with long, curved hemostats. Formerly I ligated those vessels which after a few moments continued to bleed following the release of the hemostat. This was difficult of accomplishment in small throats and I feel certain was the cause of after-hemorrhage in two cases. The tonsillar wound is an infected area which heals by granulation. Ligatures become buried in the granulating mass, and due to the variable bacteria constantly present in the throat become infected and break down. This is the only explanation I can give for the following case of late secondary hemorrhage.

C. D., a young girl, aged five years, was operated on Feb. 7th, 1910. The tonsils were large, ragged and unusually adherent to the pillars. The right tonsil showed no tendency to bleed. The left tonsil continued bleeding profusely from an artery in the center of the cavity, directly behind the anterior wall. It was picked up with a hemostat but continued to spurt after three successive applications of three or four minutes' duration. A catgut ligature was applied which controlled the hemorrhage. On the thirteenth day following operation the child, while playing, was suddenly taken with marked bleeding from the mouth. When I arrived one-half hour later the girl was in bed, very pale, and would not open her mouth, but clung to the iron bed railing. She was taken to a hospital, given ether, and I found marked oozing from the site of the previous ligature on the left side. The pillars were sewed with catgut and the child made an uneventful recovery.

A second case showed secondary hemorrhage on the third day. Here also ligatures had been used but evidently loosened or became buried in the graulative tissue. Following these cases I discarded ligating the bleeding vessels, which was a difficult procedure at best, and confined my efforts to sewing the pillars in uncontrollable cases. For this purpose I have a long, curved needle, use catgut and pass the suture from the upper portion of the posterior pillar to the anterior pillar. The bite is taken quite deep near the floor of the cavity. The suture is now picked up on the anterior pillar and the needle slipped back through the original whole and reinserted, without loosing the suture, at the lower end of the posterior pillar and again carried to the anterior one. Now the needle is freed from the suture and slipped back through the latter holes. This leaves a mattress suture which does not touch the free edges of the pillars.

The original method of using an interrupted stitch I have discarded as in a number of cases it sloughed out leaving a notch in the pillars.

Catgut is very poorly absorbed in the throat and should be removed when possible. Silk is not practicable, particularly in children. Ordinarily, the edema prevents its ready removal as does the inability of the patient to open his jaws sufficiently. Formerly, in a number of cases, I packed the cavity with a sponge and sewed the pillars over the sponge using the suture for retaining purposes only. I finally discarded this procedure, as the sponge becomes very adherent and is with the greatest difficulty removed. Tonsillar clamps are awkward, must have a string attached and require removal.

No patient should be permitted to leave the operating table until both cavities are dry. Every case of delayed primary or secondary hemorrhage I have encountered has given evidence, while on the operating table, of a tendency to bleed. At present I sew every case in which, after ten minutes from the enucleation, the bleeding has not been stopped. One must set some such time limit, otherwise a tremendous amount of time will be wasted.

For a period of six months I sewed the pillars in all cases, as a routine procedure. In a number the pillars separated, while in others they grew together. I can see no possible objection to this procedure. The deformity is no greater following sewing than due to the cicatricial contraction of the average healed case.

The tonsils get their blood supply from five vessels:

(1) Ascending pharyngeal branch.
(2) Ascending palatine branch of the facial.
(3) Tonsillar branch of the facial.
(4) Tonsillar branch of the Dorsalis Linguae.
(5) Descending palatine branch of the internal maxillary.

All of these come from the external carotid, hence, if sewing the pillars will not control a case it would be necessary to ligate the external carotid.

It is practically impossible to wound the internal or external carotid as the tonsil lies upon the pharyngeal and aponeurosis of the superior constrictor muscle. The ascending pharyngeal and external carotid lie outside the muscle and the internal carotid two to three centimeters deeper. A wire snare will hug the capsule closely if the anterior pillar and dome have been carefully loos-

ened. I have never seen a case where this became necessary.

Following hemorrhage it is well to put the patient upon a saline injection given by the Murphy drop method, and if the loss has been considerable the foot of the bed should be elevated, and morphine given sub-cutaneously.

I wish to emphasize the importance of treating tonsillar hemorrhage surgically, i. e., by mechanically compressing the bleeding vessels. The Mikulicz tonsil hemostat is an old-fashioned, barbarous instrument. When applied it is extremely uncomfortable to the patient and has a constant tendency to become dislodged. If held sufficiently tight to retain its position, it keeps the patient awake with saliva flowing from his mouth, pain over the wound and angle of the jaw and causes the sponge to adhere firmly to the cicatrizing surface.

It is not safe or good practice to rely upon chemical means for control of bleeding. It must be remembered that vaso-constrictors cause a secondary dilatation of the blood-vessels.

THROMBOSIS OF THE SIGMOID SINUS AND JUGULAR VEIN, FROM DIRECT TYMPANIC INFECTION OF THE JUGULAR BULB. A REPORT OF TWO CASES.*

By HILL HASTINGS, M. D., Los Angeles.

One, if not both, of these cases comes, I believe, under the classification of direct jugular bulb infection, from acute middle ear suppuration. Similar cases have been reported from time to time during the past few years, but not a sufficient number put on record to impress the general profession with the possibility of the rapid development of this dangerous complication.

Case 1. R. C., age 9, was brought to the Good Samaritan Hospital, Jan. 12, 1912, with the following history: Twelve days ago severe earache developed after a "cold in the head." Two days later a physician was called and found a temperature of 106°. There was no ear discharge, and no mastoid tenderness. The excessively high temperature was attributed at first to nervousness. The following day the family physician, Dr. Henry Prigge, was called and found a temperature of 105°. The child was restless, had moderate amount of earache and a very red, dry tongue. The child's appearance indicated the onset of one of the exanthematous diseases, likely scarlet fever. For the next week the child's temperature ran an irregular course, reaching as high as 106°; without any discharge and without much earache. On the eleventh day the temperature again went up to 106°. The child had developed some mastoid tenderness, and for two days slight ear discharge had been noticed. A confrere called to see the case in my absence, incised the drum membrane, and advised the parents of the child of the necessity of a mastoid operation.

The child was brought to the hospital the following day. When I saw the case, January the 12th, the temperature was only 99.8°. There had been no chill, or sweating; the tongue was dry and red; the general appearance was fairly good. There was no appreciable ear discharge; the drum membrane was dull red, sagging above, as was the adjacent postero-superior canal wall. The incision in the drum membrane, done the day previous, was closed by swelling of the membrane. The mastoid was moderately tender over the antrum and tip—not tender over the emissary vein. There was no thickening, and no tenderness along the jugular vein. Prior to this illness the child had never had any ear trouble.

Except for the well authenticated history of high and irregular temperature, simple mastoid involvement would have been the accepted diagnosis, calling for a simple mastoid operation.

A blood count and blood culture were at once made. The blood count proved 34,000 white cells, 84% polymorphonuclear cells. The afternoon of the same day the temperature again ran up to 105.8°, without a rigor. The diagnosis of septic thrombosis, likely dating back to the second day after the initial earache was considered reasonably certain. Immediate operation was advised, and the severity of the complication explained. The blood culture report was not, of course, obtainable until later. It proved negative.

Operative findings: A small amount of pus, subperiosteal, over the zygoma, escaped. The outer table of the mastoid was hard and no carious defect found. The mastoid cells, here and there, contained pus. The sinus bony covering was hard and no caries found. On chiseling away this bone the sigmoid sinus was found collapsed; its wall thickened and dull red. On opening the sinus a thrombus was removed extending from behind the knee down the descending limb of the sinus, as far as it could be uncovered. A curet was gently inserted toward the bulb, but the lower limit of the thrombus could not be reached from the mastoid cavity. The wound was packed, and the neck prepared. The jugular vein was uncovered and found collapsed above the entrance of the facial. The jugular was ligated about 2 inches below the facial and resected from this point upward as far as possible, along with two swollen lymphatic glands. A smear from the sinus thrombus showed streptococci. No thrombus in the neck portion of the jugular was found.

Examination of the eye was not made prior to operation. Several days later the fundus examination showed edema of both discs.

Jan. 13 (day after operation) the temperature dropped to 99.6°, up to 104° by 11 p. m.

Jan. 14, temperature from 99° to 105° (rectal).

Jan. 15, temperature from 98.4° to 105°.

Jan. 16, temperature from 98.6° to 105°.

General condition was fairly good.

Jan. 17 to Jan. 29, the temperature continued its septic course.

Jan. 29, the right sterno-clavicular joint became swollen and tender, with some pain and tenderness in the right shoulder. The septic sternal joint was opened with cocaine anesthesia and some pus evacuated. The blood count showed improvement—white cells, 9,800; polymorphonuclears 72%, mononuclears, small, 22%, large 6%.

Jan. 29 to Feb. 2 the temp. remained below 102° (rectal).

Feb. 2, temp. rose to 104° and a neck swelling occurred at lower end of incision; this was opened under ether and a tablespoonful of pus evacuated.

Feb. 4, temp. rose again to 104°, considerable pain and tenderness in the groin, and some edema of the foot and leg. Phlebitis of the femoral or saphenous vein was believed to have occurred. The sterno-clavicular joint was still discharging slightly, and there was still some pus draining from the neck wound.

Feb. 13, the edema of the leg has disappeared, and the pain and tenderness over the femoral likewise has passed away. The sterno-clavicular joint has healed.

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